
Telephones

Packing and unpacking

Use proper care while unpacking any digital telephone. Check for damaged containers so that appropriate claims can be made to the transport company for items damaged in transit.

If a telephone must be returned to the factory, pack it in the appropriate container to avoid damage during transit. Remember to include all loose parts (cords, handset, power unit, labels, and lenses) in the shipment.

Installation and removal

On QSU71 telephones, key 8 must be assigned as NUL, and key 9 as RLS. Do not remove the circuit card if any remaining units on the card are assigned.

Procedure 10

Installing 500/2500, SL-1, M1009, M1109, and M1309 telephones

- 1 Ensure that the wiring is installed at the telephone's location.
- 2 Unpack and inspect the telephone for damage. Assemble the handset and line cords if necessary.
- 3 Install the required designations on the telephone.
- 4 Connect the telephone to the connecting block or connector.
- 5 Cross-connect the telephone wiring at the cross-connect terminal.
- 6 Configure the telephone in the system. Refer to the *X11 input/output guide* (553-3001-400).

Procedure 11

Removing 500/2500, SL-1, M1009, M1109, and M1309 telephones

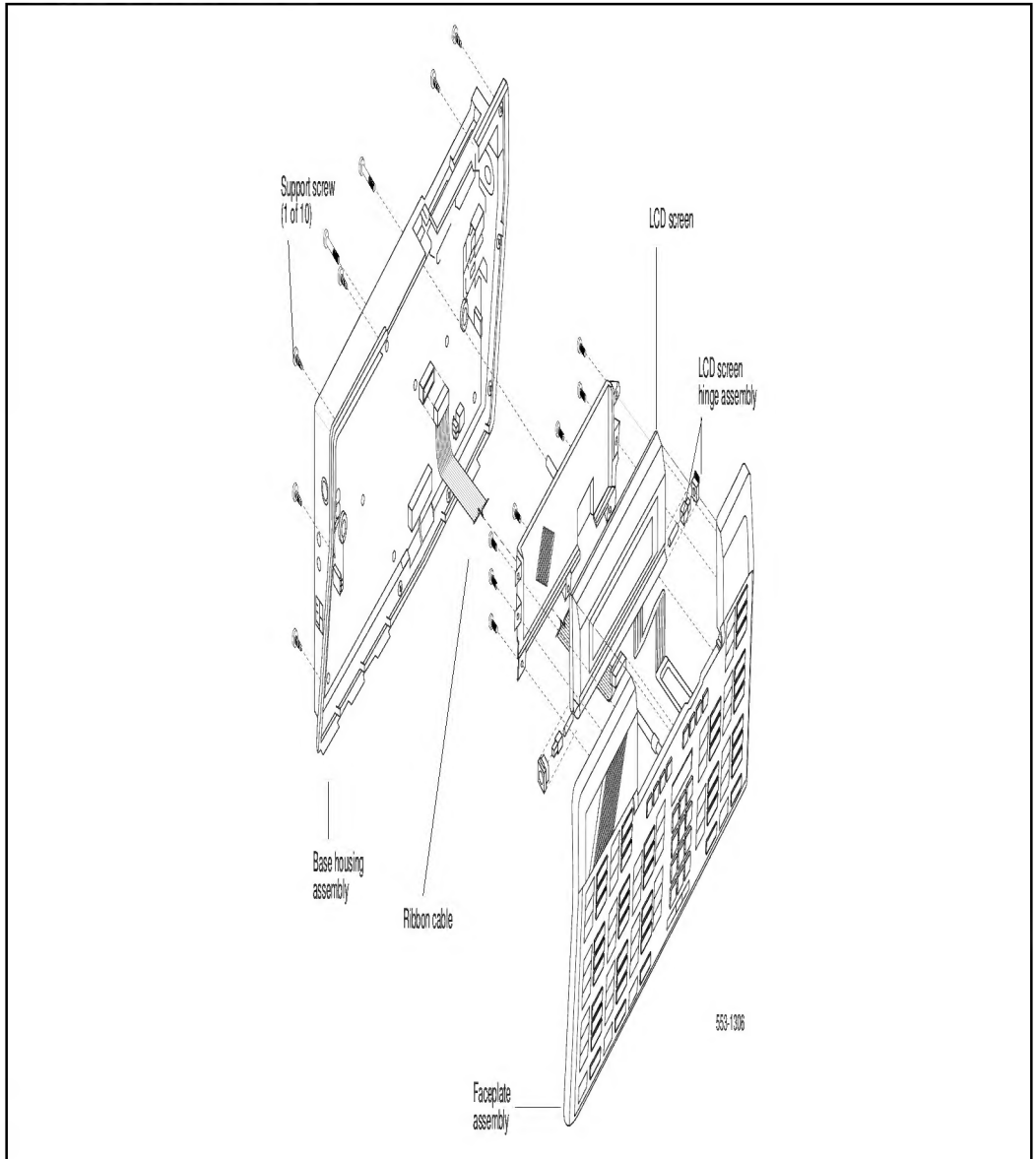
- 1 Remove telephone data from the system. Refer to the *X11 input/output guide* (553-3001-400).
- 2 Disconnect the telephone from the connecting block or connector.
- 3 Pack the telephone in a container.
- 4 If necessary, remove the cross-connections for the telephone at the cross-connect terminal.
- 5 Remove the line circuit card if required. Refer to *Circuit card installation and testing* (553-3001-211).

Procedure 12

Installing the SL-1 telephone faceplate

- 1 Place the telephone on a desk with the front edge slightly beyond the edge of the desk.
- 2 Fit the cover to the housing and tighten the captive retaining screws.
- 3 Position the faceplate so that the keys will pass through the cutouts in the faceplate (see [Figure 16](#)).
- 4 Tilt the back edge of the faceplate toward the rear of the telephone and insert the locating tabs into the slots on the cover.
- 5 Keeping the locating tabs in the slots, tilt the front edge of the faceplate down, passing the keys through the cutouts in the faceplate.
- 6 Press the front edge of the faceplate down until the faceplate catches snap into place.
- 7 Ensure that the faceplate is securely held in place without binding the keys.

Figure 16
SL-1 telephone faceplate



Procedure 13

Removing the SL-1 telephone faceplate

- 1 Place the SL-1 telephone on a desk with the front edge slightly beyond the edge of the desk.
- 2 Insert a paper clip into each release hole in the front edge of the telephone housing, and pry the faceplate open (see [Figure 16](#)).
- 3 Lift the faceplate off.
- 4 Unscrew the captive retaining screws securing the cover to the housing, and remove the cover.

Procedure 14

Installing the M2000 digital telephones

- 1 Complete the wiring and cross-connections as shown in [Figure 17](#) before connecting the telephone(s) to the connecting block(s).
- 2 Place the telephone upside down on a number of sheets of soft, clean paper on a solid, level work surface to prevent damage to movable keys and the telephone face.
- 3 Connect the handset cord 4-conductor TELADAPT connectors to the handset and the telephone and snap into place.
- 4 After connecting the handset cord to the connector in the base of the telephone, turn the smooth side of the handset cord up (away from telephone base) before tucking it under the restraining tab to ensure that the telephone will sit level on the desk after installation is complete.
- 5 Connect the 6-conductor line cord to the telephone base, and route it under the tabs.
- 6 Turn the telephone right side up and place it in the normal operating position.
- 7 Designate buttons for key labels.
- 8 Insert the line cord TELADAPT connector into the connecting block and snap it into place.
- 9 Test the telephone using LD 31. See *X11 input/output guide* (553-3001-400).

Figure 17
M2000 digital telephone connections

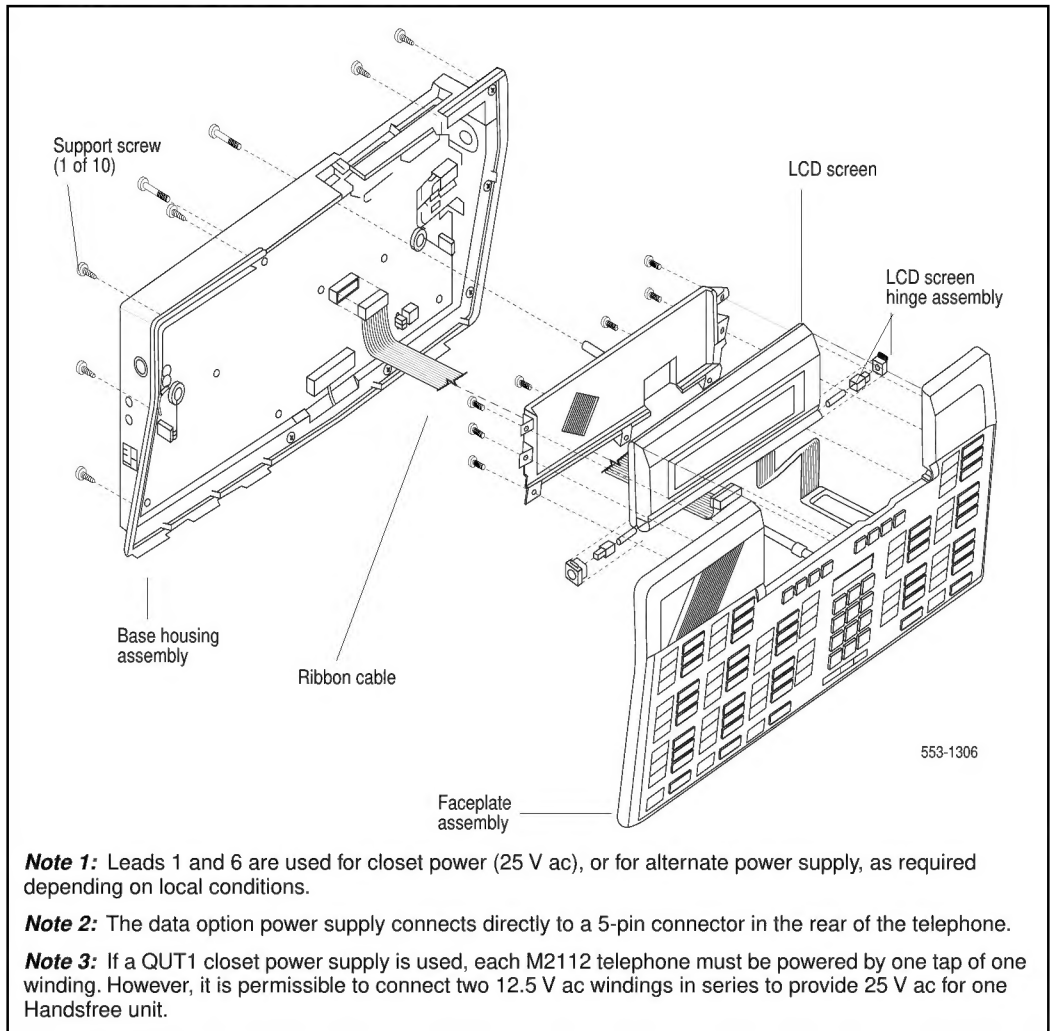


Table 7
M2000 trouble-locating procedures (Part 1 of 2)

Data communication failure	
1	If voice communication is normal but data communication fails, check for dc output voltage at power supply connector pins or replace power supply plug-in transformer. Attempt to make a data call from the terminal keyboard. If not successful, proceed with step 2.
2	Remove the transformer from the AC receptacle, unplug the 5-pin power supply connector at the back of the telephone, and replace the data option circuit board (see Procedure 67 and Procedure 68). Reconnect the data option power supply. Make a new attempt to start a data call. If trouble persists, continue with the ISDL C failure procedure.
ISDL C failure	
1	Check the Meridian 1 system maintenance terminal (TTY or CRT) and check for displayed error and location codes. An "NWS 401 L S C" or an "NWS 501 L S C U" code indicates that the automatic (routine) diagnostic test has detected a fault. Check for the following indications: L = faulty circuit card (ISDL C card) loop number S = circuit pack location (shelf number) C = number of the faulty circuit card U = unit number of a faulty telephone (appears only in conjunction with the NWS 501 code)
2	Replace faulty components. Try to establish a call. If unsuccessful, check the telephone.

Table 7
M2000 trouble-locating procedures (Part 2 of 2)

Telephone (voice or dialing) failure	
1	Check the line cord and handset cord to determine if all TELADAPT connectors are firmly in place and reconnect the loose ones. Ensure that the polarity of the Tip and Ring leads is correct. Lift the handset and listen for the dial tone and/or dial a directory number. If unsuccessful, proceed with step 2.
2	Wiggle the line cord and/or handset cord while listening for sounds from the handset. If crackling or ticking sounds are heard, replace the cords. Try to establish a call. If unsuccessful, proceed with step 3.
3	Replace the telephone. Try to establish a call. If unsuccessful, proceed with step 4.
4	Check wiring between the line card, the distribution panel, and the telephone for breaks or loose connections. If necessary, rerun the wiring. Operate the telephone. Note: Note: If no error codes are shown at the maintenance terminal (that is, no automatic diagnostic test was running), the Network and Signaling Diagnostic (LD 30) can be loaded and run manually from the system TTY. Refer to the <i>X11 input/output guide</i> (553-3001-400).

Procedure 15
Installing Meridian Modular Telephones
(M2006/M2008/M2016S/M2616/M2216ACD)

- 1 Complete the wiring and cross-connections (loop power) before connecting the telephone to the connecting block. See [Figures 18](#) and [19](#).
- 2 Place the telephone upside down on a number of sheets of soft, clean paper on a solid, level work surface to prevent damage to movable keys and the telephone's face.
- 3 Connect the handset cord (5-conductor TELADAPT connectors) to the handset and snap it into place (not applicable to M2216ACD).
- 4 Connect the other end of the handset cord to the connector in the bottom cover of the telephone. Turn the smooth side of the handset cord up (away from the telephone bottom cover) before tucking it under the restraining tab to ensure that the telephone will sit level on the desk after installation is complete (not applicable to M2216ACD).
- 5 Connect the line cord to the telephone bottom cover. Route the cord through the channels.
- 6 Turn the telephone right side up and place it in the normal operating position.
- 7 Print the directory number on the designation card. Using a paper clip, remove the number lens from the telephone. Insert the designation card and snap the lens back into place.
- 8 Designate the feature keys.
- 9 Insert the line cord TELADAPT connector into the connecting block and snap it into place.
- 10 Perform the self-test (see [Procedure 16](#)) and acceptance test procedures. See LD 31 in the *X11 input/output guide* (553-3001-400).
- 11 Supply the user with a quick reference card and all user documentation. Make sure the SPRE number is printed on the quick reference card.

Figure 18
Meridian Modular Telephone connections

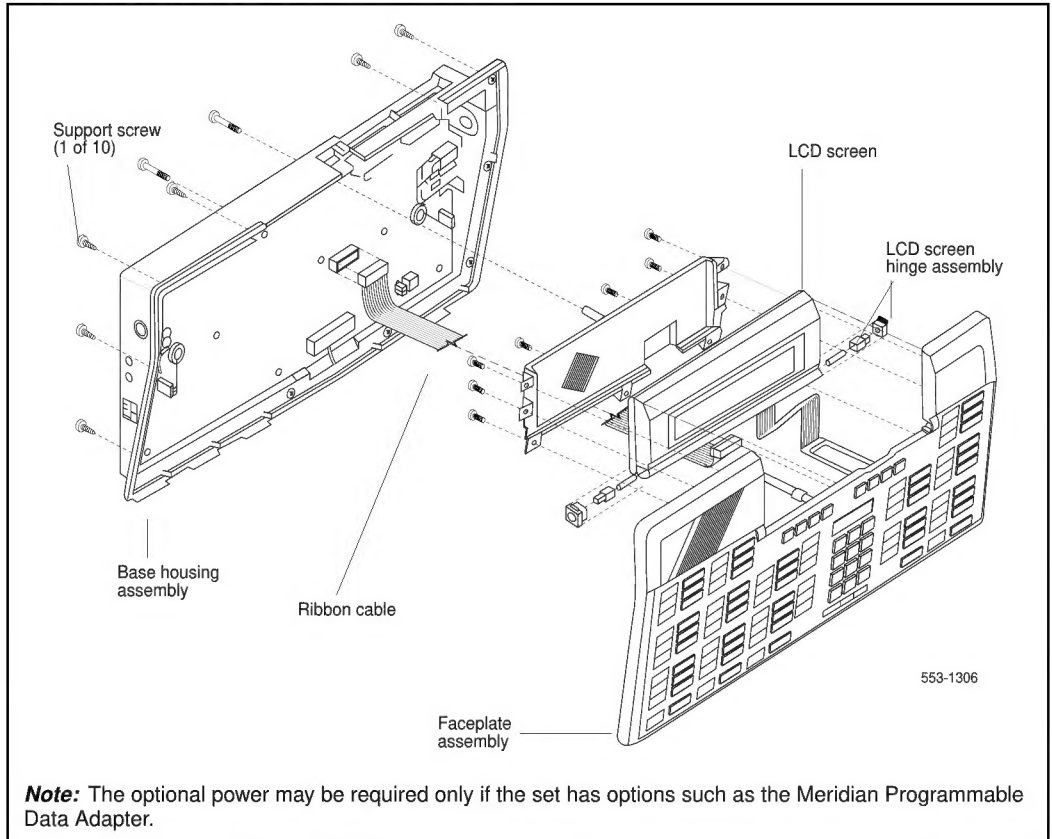
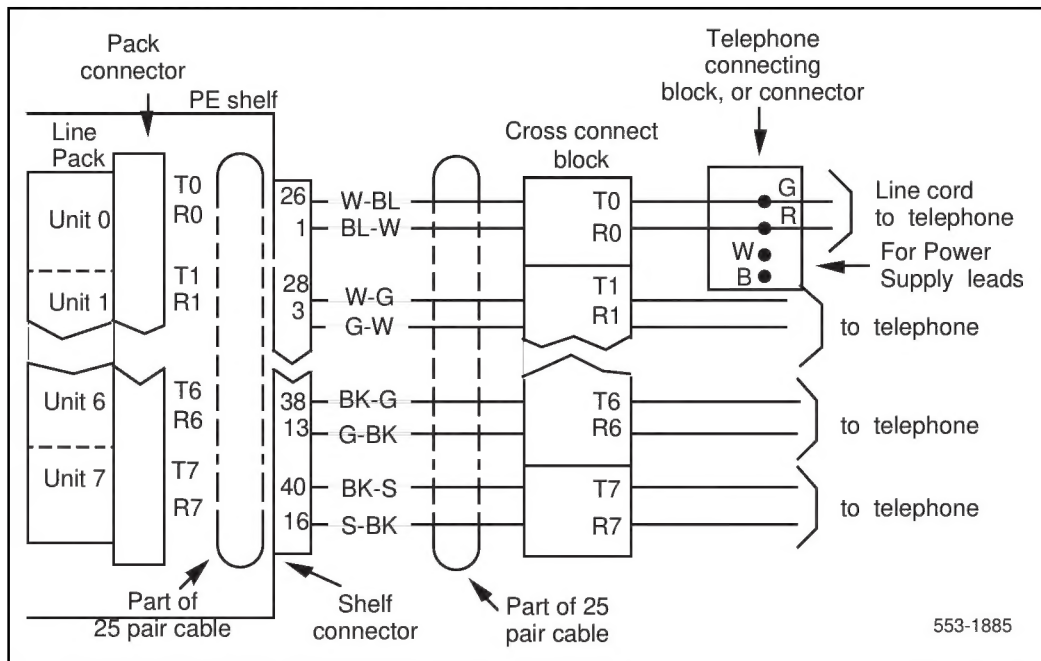


Figure 19
Meridian Modular Telephone cross-connections



Meridian Modular Telephones self-test

Meridian Modular Telephones have a self-testing capability. Perform the self-test after installing a Meridian Modular Telephone or any of the hardware options to ensure proper operation.

Procedure 16

Meridian Modular Telephones self-test

- 1 Unplug the line cord from the telephone.
- 2 While holding down the RLS key, plug in the line cord to the telephone. Let go of the RLS key.
- 3 Use [Table 8](#) to perform the necessary steps and check results.

Table 8

Meridian Modular Telephones self-test steps and results (Part 1 of 2)

Step	Action	Result
1	Begin test (plug in line cord while holding down the RLS key). The handset is on hook.	Speaker beeps once, all LCDs flash. Message Waiting lamps light steadily. Display reads: LOCAL DIAGNOSTIC MODE PRESS RLS KEY TO EXIT
2	Press each Function key, from zero to fifteen (if you have Key Expansion Modules, continue pressing the Function keys, in any order).	Adjacent LCD goes off when a key is pressed.
3	Press the Hold key.	Speaker beeps.
4	Press each dial pad key.	Speaker beeps each time a key is pressed.
5a	Lift the handset (if applicable). Press the dial pad keys. Replace the handset.	Speaker beeps. Handset beeps.

Table 8
Meridian Modular Telephones self-test steps and results (Part 2 of 2)

Step	Action	Result
5b	Plug in the headset (if applicable).	Speaker beeps.
	Press the dial pad keys.	Headset beeps.
	Unplug the headset.	
6	Press the right side of the volume control key.	Speaker beeps. Display is filled with dark squares.
	Press the right side of the volume control key.	Speaker beeps. Display is blank.
	Press the right side of volume control key.	Speaker beeps. Display shows symbols including digits 0–9 and uppercase alphabet
	Press the right side of the volume control key.	Speaker beeps. Display shows symbols including upper- and lowercase alphabet.
	Press the right side of the volume control key.	Speaker beeps. Display shows various symbols.
	Press the right side of the volume control key.	Speaker beeps. Display shows symbols.
	Press the right side of the volume control key.	Speaker beeps. Display is filled with dark squares.
	Press the RLS key (end of test).	Message Waiting lamp goes off. Display shows idle screen within 10 seconds.

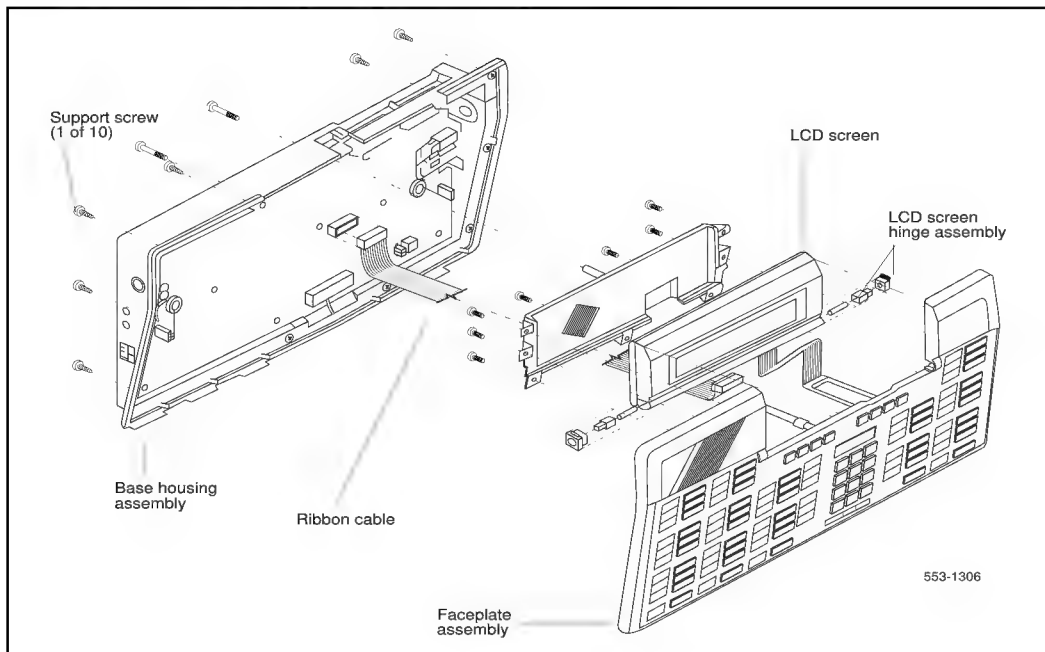
Procedure 17
Installing the M2317 telephone

- 1** Complete the wiring and cross-connection according to [Figure 20](#) before connecting the telephone to the TELADAPT connector block.
- 2** Place the telephone upside down on a number of sheets of soft, clean paper and on a solid, level work surface to prevent damage to movable keys and the telephone's face.
- 3** Connect the handset cord 4-conductor TELADAPT connectors to the handset and to the telephone and snap into place.
- 4** Turn the smooth side of the cord away from the telephone base and secure it under the restraining tab. This ensures that the telephone sits level after the installation is complete.
- 5** Connect the 6-conductor line cord to the telephone base, and place it under the restraining tabs.
- 6** Turn the telephone face up, and place it in the normal operating position.
- 7** Print the directory number (DN) on the designation card and place it in the designation card holder.
- 8** Designate button labels for programmable keys, and place them under the button cover.
- 9** Insert the line cord TELADAPT connector block and snap it into place. Place the line cord under the restraining tabs.
- 10** **Plug the 5 V power supply connector into the back of the telephone.**
- 11** Plug the power supply into an AC utility outlet.
- 12** After the M2317 digital telephone is connected to a line that is both enabled and designated as an M2317 digital line, the startup screen displays INITIALIZATION V6.4. Within 5 seconds, the Idle state screen is displayed, and the M2317 is operational. The term V6.4 represents the firmware issue number, and may differ with some installations.

- 13 If the M2317 has been connected to a line that is designated as a digital line, but is not enabled, the display will prompt CONTACT SYSTEM ADMINISTRATOR. The line must be enabled using LD 32 from the maintenance terminal, and by enabling the features outlined in the work order. Refer to the *X11 input/output guide* (553-3001-400) for the required routines, prompts, and responses.

 If the M2317 has been connected to a line that is neither defined as a digital line nor enabled, refer to the *X11 input/output guide* (553-3001-400) for required routines, prompts, and responses.
- 14 Verify that all the requested features are enabled by accessing them with the soft keys, or programmable keys, from the M2317 telephone and observing the display screen.
- 15 Perform the self-test (see [Procedure 18](#)) and acceptance test procedures. See LD 31 in the *X11 input/output guide* (553-3001-400).

Figure 20
M2317 digital telephone cross-connections



M2317 telephone self-test

The M2317 telephone has a self-testing capability. You can perform this test whether or not the telephone is connected to the Meridian 1 system. The test checks the proper functioning of the keys and liquid crystal display (LCD) indicators on the set. Follow the steps listed in [Procedure 18](#) and [Table 9](#) to perform the M2317 self-test.

Procedure 18

M2317 telephone self-test

- 1 Connect the telephone to the AC power supply.
The LCD screen displays "Initialization ... vX.X" (note that you have only 3 to 5 seconds to begin step 2).
- 2 Press softkey 5 twice, then press softkey 4 twice.
- 3 Use [Table 9](#) to perform the necessary steps and check results.
- 4 Unplug the power supply to end the test.

When the M2317 digital telephone or the data option fails to function properly, follow the steps listed in [Table 10](#) in sequence to isolate the problem area.

Table 10
M2317 trouble-locating procedures (Part 1 of 2)

Loop power failure	
1	Plug in the telephone.
2	The LCDs flash once to indicate the power is OK.
Data communication failure	
1	If voice communication is normal but data communication fails, check for DC output voltage at the power supply connector pins or replace the power supply plug-in transformer. Attempt to make a data call from the terminal keyboard (refer to <i>Meridian 1 telephones description and specifications</i> (553-3001-108)). If not successful, proceed with step 2.
2	Make a call to the DN (voice or data) to verify that the port is enabled.
3	Use an EIA or RS-232 breakout box in conjunction with the terminal cable to verify lead states and replace or repair cable if pinouts are incorrect. Attempt to make a data call from the terminal keyboard (refer to <i>Meridian 1 telephones description and specifications</i> (553-3001-108)). If still not successful, proceed with step 4.
4	Remove the transformer from the AC receptacle, unplug the 5-pin power supply connector at the back of the telephone, and replace the data option circuit board (see Procedure 68). Reconnect the data option power supply. Make a new attempt to start a data call. If trouble persists, continue with the ISDLIC failure procedure.
5	Use the self-test procedure to verify that the telephone electronics are operating correctly.

Table 10
M2317 trouble-locating procedures (Part 2 of 2)

ISDLC failure	
1	Go to the system maintenance terminal (TTY or CRT) and check for displayed error and location codes. An "NWS 401 L S C" or an "NWS 501 L S C U" code indicates that the automatic (routine) diagnostic test has detected a fault. Check for the following indications: L = faulty circuit card (ISDLC card) loop number S = circuit card location (shelf number) C = number of the faulty circuit card U = unit number of a faulty telephone (appears only in conjunction with the NWS 501 code)
2	Replace the faulty components. Try to establish a call. If unsuccessful, check the telephone.
Telephone (voice or dialing) failure	
1	Check the line cord and handset cord to determine if all TELADAPT connectors are firmly in place and reconnect the loose ones. Ensure that the polarity of the Tip and Ring leads is correct. Lift the handset and listen for the dial tone and/or dial a directory number. If unsuccessful, proceed with step 2.
2	Wiggle the line cord and/or handset cord while listening for sounds from the handset. If crackling or ticking sounds are heard, replace the cords. Try to establish a call. If unsuccessful, proceed with step 3.
3	Replace the telephone. Try to establish a call. If unsuccessful, proceed with step 4.
4	Check the wiring between the line card, distribution panel, and telephone for breaks or loose connections. If necessary, rerun the wiring. Operate the telephone.
Note: If no error codes are shown at the maintenance terminal, the Network and Signaling Diagnostic (LD 30) can be loaded and run manually from the system TTY. Refer to the <i>X11 input/output guide</i> (553-3001-400).	

Procedure 19**Installing the M3000 Touchphone set**

- 1 Place the Touchphone set upside down on a number of sheets of soft, clean paper on a solid, level work surface to prevent damage to movable keys and the telephone's face.

Installing Asynchronous Data Option (ADO)

- 2 Remove the four self-tapping screws that fasten the stand to the Touchphone body. Lift the stand off the locating posts in a straight, upward motion.
- 3 Snap the ADO into the rear of the Touchphone body, with the ribbon cable and header connector protruding from the front of the ADO housing.
- 4 Plug the 34-pin header connector at the end of the ribbon cable into the receptacle located in the body of the Touchphone set and press firmly.

Assemble the Touchphone set and Stand

- 5 Place the stand over the Touchphone body and position over the four locating posts.
- 6 Using the four self-tapping screws removed earlier, fasten the stand securely to the Touchphone body.

Connect the Cords

- 7 If the handset is not already connected to the Touchphone set, connect the cord's TELADAPT connector to the Touchphone body. Route the cord under the plastic tabs in the stand and out the exit slot. Snap the other end of the cord into the handset receptacle.
- 8 Connect the line cord TELADAPT connector to the Touchphone body jack, and route the cord through the channel in the stand. Connect the other end of the line cord to the baseboard or wall connector.
- 9 Plug the power transformer cord into the mating connector in the Touchphone body and press firmly.

- 10** Route the power cord through its channel in the stand. Plug the transformer into an AC wall outlet. The Touchphone display screen will show STARTING UP and will prompt the user to PLEASE WAIT.

Note 1: The characters displayed between the prompt PLEASE WAIT and the string of five numbers at the bottom of the display are special codes used for service routines only. Unless this is an initial installation, ignore them.

Note 2: If installing the telephone for the first time, enter the initialization code. This clears the directory and prepares the telephone for installation.

Initialization

- 11** If the Touchphone set being installed is connected to a line that is defined as an M3000 Touchphone line, and is enabled, the STARTING UP screen display will automatically change to the IDLE screen display within 10 seconds.

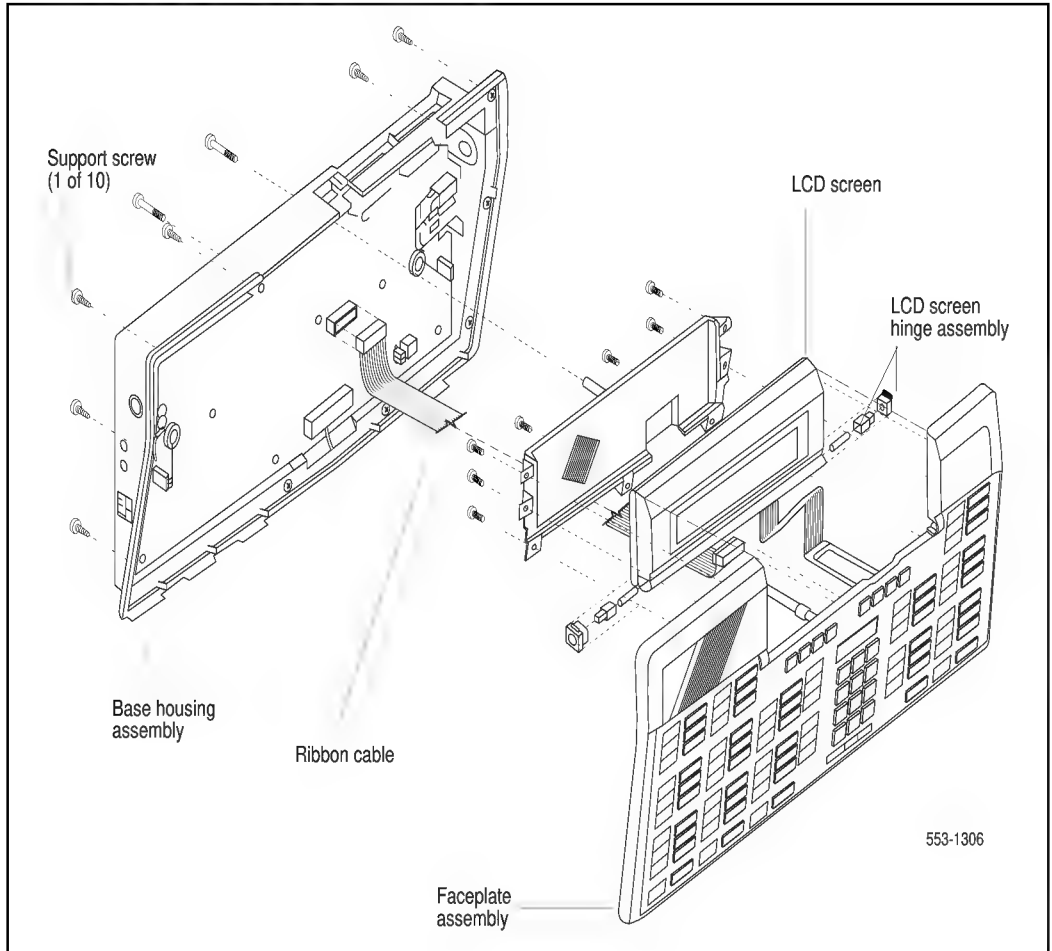
If the prompt STARTING UP ... PLEASE WAIT remains on the screen longer than 15 seconds, the Touchphone set being installed is connected to a line defined as an M3000 line, but the line is not enabled. The line must be enabled using LD 32 from the maintenance terminal, and by enabling the features outlined in the work order. Refer to the *X11 input/output guide* (553-3001-400) for the required routines, prompts, and responses.

If the Touchphone set being installed is connected to a line that is neither defined as an M3000 line nor enabled, refer to LD 11 in the *X11 input/output guide* (553-3001-400). Refer to step 12 for feature verification.

- 12** If the Touchphone set to be installed has arrived directly from the factory, or if it has come from another location with a stored internal directory that is unrelated to the new location, touch positions 1 3 3 2 (in that sequence) in the number string at the bottom of the STARTING UP screen display prior to loading data and features.

Note: If digits 1, 3, 3, and 2 are operated on the STARTING UP screen, the internal memory store of that Touchphone will be wiped clean.

Figure 21
M3000 Touchphone cross-connections



- 13 Verify that all features requested in the work order are enabled by touching TOUCH PROFILE on the IDLE screen, then LIST FEATURES on the TOUCH PROFILE screen. Enabled features will show a black box beside them. Features not enabled will show a blank box.

The M3000 is now operational. Should the M3000 Touchphone set fail to operate, see *Meridian 1 telephones description and specifications* (553-3001-108).

For an illustration of the M3000 Touchphone cross-connections, see [Figure 21](#).

M3000 trouble locating

Trouble conditions are either reported by the telephone user (customer report) or by the Meridian 1 trouble-indicating system by means of automatic routine tests. For recommended trouble-locating routines refer to [Table 11](#). For detailed diagnostic program descriptions and input/output reference, consult the *X11 input/output guide* (553-3001-400).

When the Touchphone set and/or the data option fails to function properly, follow the steps in sequence as listed in [Table 11](#) to isolate the problem area.

Table 11
M3000 trouble-locating procedures (Part 1 of 2)

Data communication failure	
1	If the Touchphone screen shows the prompt CHECK TERMINAL AND TRY AGAIN, check for a disconnected RS-232 plug or a power failure at the DTE or the computer terminal and take corrective action. The Touchphone screen should change to the Data Call Initiation state. See <i>Meridian 1 telephones description and specifications</i> (553-3001-108). Attempt to make a data call from the terminal keyboard. If unsuccessful, check subsequent steps.
2	If the Touchphone screen shows the prompt REPORT DATA CHANNEL PROBLEM, check out the following: (a) Check if the data TN has been disabled in LD 32, or if the system disabled it due to excessive errors. If so, reenable the data TN in LD 32. (b) If the station was recently relocated, the data TN may not have been redefined (set relocation does not automatically move the voice and data TNs together). Check LD 20 to see if the data TN is defined. If not, use Overlay 11 to make the data TN and voice TN conform (note that the data TN must be 8 units higher than the voice TN, with the same loop, shelf, and card number). (c) The data option is defective or disconnected from the Touchphone circuit board, or switch 5 on the SL-1 system QPC464 peripheral buffer card is not set for quad density. Check switch 5 on the QPC464 first, and if that is set correctly, check if the ribbon cable connector from the data option is plugged into the Touchphone set securely (the Touchphone stand must be removed to check the ribbon cable). Attempt to make a data call from the terminal keyboard. Refer to <i>Meridian 1 telephones description and specifications</i> (553-3001-108). If not successful, proceed with step 3.
3	Replace the data option (see Procedures 67 and 68). Make a new attempt to start a data call. If trouble persists, continue with "ISDLIC failure."

Table 11
M3000 trouble-locating procedures (Part 2 of 2)

ISDL C failure	
1	Check the system maintenance terminal (TTY or CRT) for displayed error and location codes. An "NWS 401 L S C" or an "NWS 501 L S C U" code indicates that the automatic (routine) diagnostic test has detected a fault. Check for the following indications: L = faulty circuit pack (ISDL C card) loop number S = shelf number where circuit card is located C = the number of the faulty circuit card U = the unit number of a faulty telephone (appears only in conjunction with the NWS 501 code)
2	Replace the faulty components (for replacement procedures refer to <i>Circuit card installation and testing</i> (553-3001-211)). Try to establish a call. If unsuccessful, proceed to check the Touchphone set.
Touchphone (voice or dialing) failure	
1	Check the line cord and handset cord to determine if all TELADAPT connectors are firmly in place and reconnect them where loose. Lift the handset and listen for the dial tone and/or dial a directory number. If unsuccessful, proceed with step 3.
2	Verify that the port is enabled.
3	Wiggle the line cord and/or handset cord while listening for sounds from the handset. If crackling or ticking sounds are heard, replace the cords. Try to establish a call. If unsuccessful, proceed with step 4.
4	Replace the Touchphone set. Try to establish a call. If unsuccessful, proceed with step 5.
5	Check wiring between the line card, distribution panel, and telephone for breaks or loose connections. If necessary, rerun the wiring. Operate the Touchphone set.
Note: If no error codes are shown at the maintenance terminal (that is, no automatic diagnostic test was running), the Network and Signaling Diagnostic (LD 30) can be loaded and run manually from the Meridian 1 system TTY by keying in "LD 30" and the suspected loop number. Refer to the <i>X11 input/output guide</i> (553-3001-400).	

Designating telephones

Before designating telephones, check the work order for features enabled and key designations. Designate each key by placing its feature name (from the designation sheet) in the key cap that fits on the key.

Procedure 20

Designating 500-type telephones

- 1 Remove the finger wheel and number card from its envelope.
- 2 Designate the number card with the appropriate directory number and station designator.
- 3 Insert the number card into the finger wheel (making sure the number card is properly oriented).
- 4 Place the telephone on a flat surface.
- 5 Place the finger wheel over the clamp on the dial, with the "0" hole directly over the digit "9," making sure the finger wheel depressions are properly positioned on the prongs of the clamp plate.
- 6 Rotate the finger wheel counterclockwise until the clamp spring snaps into the notch on the underside of the finger wheel.

Procedure 21

Removing the finger wheel from 500-type telephones

- 1 Place the telephone on a flat surface.
- 2 Rotate the finger wheel clockwise as far as possible.
- 3 Insert a paper clip into the small hole between the digits "9" and "0" located on the edge of the grooved section of the finger wheel.
- 4 Press down on the releaser to disengage the finger wheel clamp spring.
- 5 Rotate the finger wheel further clockwise until the clamp spring releases.
- 6 Remove the finger wheel when it becomes loose. The dial returns to normal position.

Procedure 22
Designating 2500-type telephones

- 1 The designation window is located directly below the dial pad. Insert a paper clip into the hole at the left or right end of the designation window.
- 2 Gently pry the window toward the center and remove.
- 3 Insert number tag with the appropriate directory number and station designator, and replace the designation window.

Procedure 23
Designating SL-1, digital, and Meridian Modular Telephones

- 1 Remove the cap from each key requiring a designation.
- 2 Place the designation in the cap, place the cap over the corresponding key, and gently press down. Repeat for all keys requiring designations.
- 3 Insert a paper clip into the hole at the left or right end of the designation window.
- 4 Gently pry the window toward the center and remove, and insert the number tag.
- 5 Replace the designation window.

Connecting telephones

[Procedure 24](#) describes how to connect SL-1 and M1109 Compact telephones.

[Figure 22](#) illustrates and [Table 12](#) lists the SL-1 and M1109 telephone connections.

Procedure 24 Connecting SL-1 and M1109 telephones

- 1 Ensure that the terminal connector is compatible with the telephone connector.
- 2 Connect the set cord to the terminal connecting block, or couple the Amphenol or the TELADAPT connector (if provided).
- 3 Secure the cover of the connector (if provided).

Figure 22
SL-1 and M1109 telephone connections

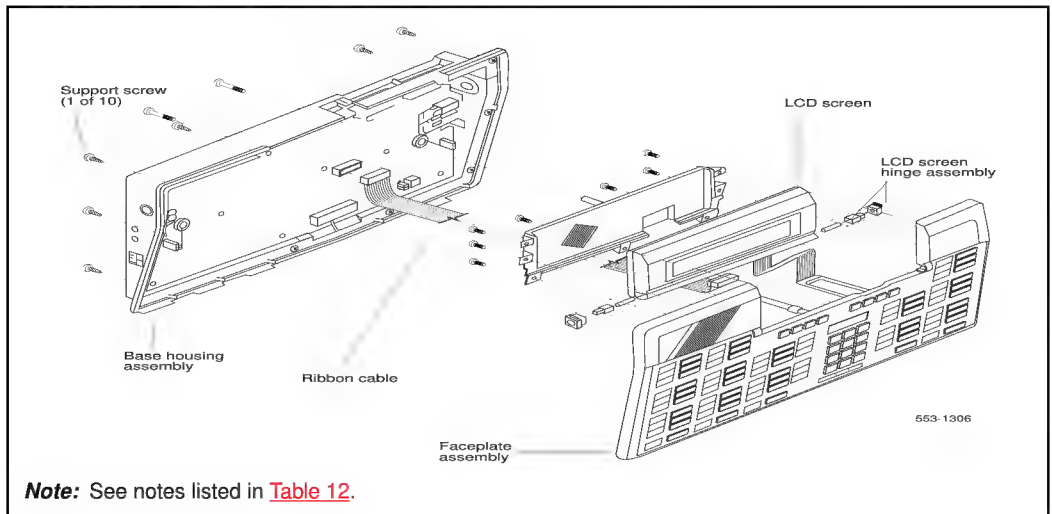


Table 12
SL-1 and M1109 telephone connections

Mounting Cord		Connecting block designations			Inside wiring colors	
Lead name	Color	NE-47QA or QBB1B	NE-283 74-5001 Adapter	NE-625F TELADAPT	Z station wire	16/25-pair cable
Audio T	G	G	1T	T1 (G)	G	W-BL
Audio R	R	R	1R	R1 (R)	R	BL-W
SIG T	BK	BK	X1	AUX (BK)	BK	W-O
SIG R	Y	Y	X2	GND (Y)	Y	O-W
AC1	BL	5	R	T2 (BL)		W-SL
AC1	W	6	B	R2 (W)		SL-W
Note 1: To prevent sending false signals to the CPU, connect and disconnect leads in the following sequence:						
Connecting		Disconnecting				
1. Signal pair (SIGT, SIGR)		1. Power pair				
2. Audio pair (AUDT, AUDR)		2. Audio pair				
3. Power pair (AC1, AC1)		3. Signal pair				
Note 2: A 24 V ac supply is required when the telephone is equipped with a digit display, such as QUS1C logic Handsfree unit, a QKK-type remote powering kit (for extended range), or QMT1 or QMT2 key/lamp modules.						
Note 3: 15 V ac supply required when equipped with a QMT3 Lamp Field Array module. An extra 3-conductor cord kit is required.						
Note 4: The 115/24 V ac or 115/15 V ac transformers must be located within 25 ft (7.7 m) of the telephone (each requires a separate transformer). With the QUT1 or QUAA1 centralized power unit, each telephone requires a separate fuse to prevent noise or cross talk.						

[Procedure 25](#) describes how to connect 500- and 2500-type telephones.

[Table 13](#) lists the NE-500/2500 telephone connections.

Procedure 25
Connecting 500/2500-type telephones

- 1** Ensure that the terminal connector is compatible with the telephone connector.
- 2** Connect the telephone mounting cord.

TELADAPT cords (NE-625F connector) do not require terminations. Insert the plastic connector on the end of the telephone mounting cord into the NE-625F-type receptacle.
- 3** Connect the mounting cord to an NE-284-74-5001 Amphenol adapter if reusing a 16- or 25-pair cable. Plug the adapter into the cable connector. Fasten the connector together with the screws provided at the end of each connector.

Table 13
NE-500/2500 telephone connections

Mounting cord	NE-47QA or QBBIB block designation	NE-284-74-5001 designation	Cable color pairs (16 to 25 not used)	Connect to TN
TIP (green)	G	1T	W-BL	TIP
RING (red)	R	1R	BL-W	RING
GND (yellow)	BK	X2		
	Y	X1		

Cross-connecting telephones

Be sure to connect the telephones according to [Figures 23, 24](#), and [25](#). [Figure 23](#) provides the diagram for cross-connecting 500/2500-type telephones on a peripheral equipment (PE) module. [Tables 14, 15](#), and [16](#) show 500/2500 telephone cross-connections on an intelligent peripheral equipment (IPE) module.

Cross-connections for SL-1 telephones are shown in [Figure 24](#), and the Meridian Modular Telephone cross-connections are shown in [Figure 25](#).

Procedure 26

Cross-connecting telephones

- 1 Locate the telephone terminations at the cross-connect terminal.

Telephone terminations are located on the vertical side of the frame when frame-mounted blocks are used and in the blue field when wall-mounted blocks are used.
- 2 Connect Z-type cross-connecting wire to the leads of the telephone (see [Tables 17](#) and [18](#)).
- 3 Locate the line circuit card (TN) terminations.

Line circuit card (TN) terminations are located on the horizontal side of the distributing frame when frame-mounted blocks are used and in the white field when wall-mounted blocks are used.
- 4 Run and connect the other end of the cross-connecting wire to the assigned TN terminal block.

Figure 23
NE-500/2500-type telephone cross-connections for PE modules

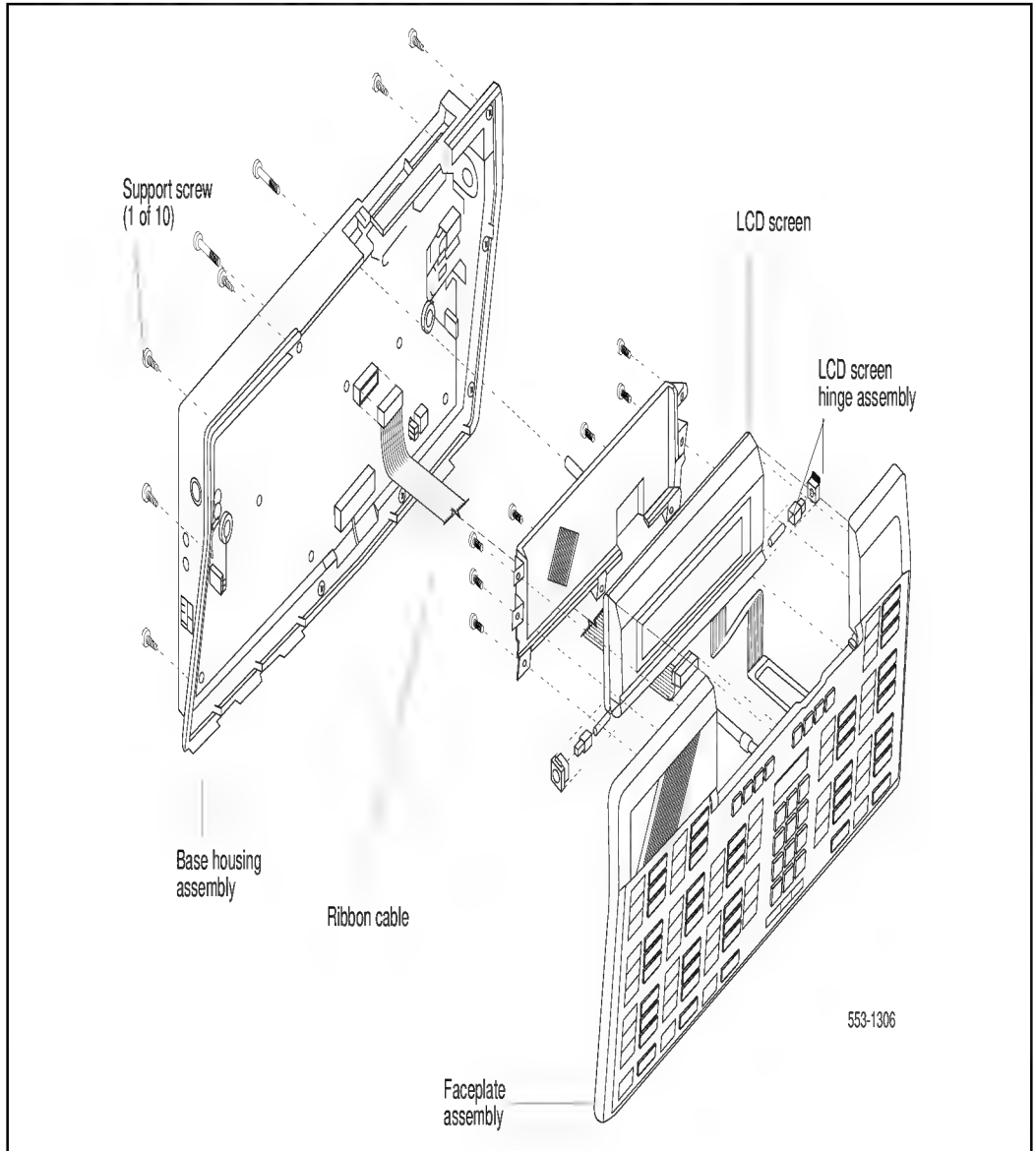


Table 14
500/2500 line card pair-terminations for IPE module connectors A, E, K, R

Pair	Pins	Pair color	I/O panel connectors				Unit
			A	E	K	R	16/card
1T/1R	26/1	W-BL/BL-W	slot 0	slot 4	slot 8	slot 12	0
2T/2R	27/2	W-O/O-W					1
3T/3R	28/3	W-G/G-W					2
4T/4R	29/4	W-BR/BR-W					3
5T/5R	30/5	W-S/S-W					4
6T/6R	31/6	R-BL/BL-R					5
7T/7R	32/7	R-O/O-R					6
8T/8R	33/8	R-G/G-R					7
9T/9R	34/9	R-BR/BR-R					8
10T/10R	35/10	R-S/S-R					9
11T/11R	36/11	BK-BL/BL-BK					10
12T/12R	37/12	BK-O/O-BK					11
13T/13R	38/13	BK-G/G-BK					12
14T/14R	39/14	BK-BR/BR-BK					13
15T/15R	40/15	BK-S/S-BK					14
16T/16R	41/16	Y-BL/BL-Y					15

Table 15
500/2500 line card pair-terminations for IPE module connectors B, F, L, S

Pair	Pins	Pair color	I/O panel connectors				Unit
			B	F	L	S	16/card
1T/1R	26/1	W-BL/BL-W	slot 1	slot 5	slot 9	slot 13	0
2T/2R	27/2	W-O/O-W					1
3T/3R	28/3	W-G/G-W					2
4T/4R	29/4	W-BR/BR-W					3
5T/5R	30/5	W-S/S-W					4
6T/6R	31/6	R-BL/BL-R					5
7T/7R	32/7	R-O/O-R					6
8T/8R	33/8	R-G/G-R					7
9T/9R	34/9	R-BR/BR-R					8
10T/10R	35/10	R-S/S-R					9
11T/11R	36/11	BK-BL/BL-BK					10
12T/12R	37/12	BK-O/O-BK					11
13T/13R	38/13	BK-G/G-BK					12
14T/14R	39/14	BK-BR/BR-BK					13
15T/15R	40/15	BK-S/S-BK					14
16T/16R	41/16	Y-BL/BL-Y					15
17T/17R	42/17	Y-O/O-Y	slot 2	slot 6	slot 10	slot 14	0
18T/18R	43/18	Y-G/G-Y					1
19T/19R	44/19	Y-BR/BR-Y					2
20T/20R	45/20	Y-S/S-Y					3
21T/21R	46/21	V-BL/BL-V					4
22T/22R	47/22	V-O/O-V					5
23T/23R	48/23	V-G/G-V					6
24T/24R	49/24	V-BR/BR-V					7
25T/25R	50/25	V-S/S-V					Spare

Table 16
500/2500 line card pair-terminations for IPE module connectors C, G, M, T

Pair	Pins	Pair color	I/O panel connectors				Unit
			C	G	M	T	16/card
1T/1R	26/1	W-BL/BL-W	slot 2	slot 6	slot 10	slot 14	8
2T/2R	27/2	W-O/O-W					9
3T/3R	28/3	W-G/G-W					10
4T/4R	29/4	W-BR/BR-W					11
5T/5R	30/5	W-S/S-W					12
6T/6R	31/6	R-BL/BL-R					13
7T/7R	32/7	R-O/O-R					14
8T/8R	33/8	R-G/G-R					15
9T/9R	34/9	R-BR/BR-R	slot 2	slot 6	slot 11	slot 15	0
10T/10R	35/10	R-S/S-R					1
11T/11R	36/11	BK-BL/BL-BK					2
12T/12R	37/12	BK-O/O-BK					3
13T/13R	38/13	BK-G/G-BK					4
14T/14R	39/14	BK-BR/BR-BK					5
15T/15R	40/15	BK-S/S-BK					6
16T/16R	41/16	Y-BL/BL-Y					7
17T/17R	42/17	Y-O/O-Y					8
18T/18R	43/18	Y-G/G-Y					9
19T/19R	44/19	Y-BR/BR-Y					10
20T/20R	45/20	Y-S/S-Y					11
21T/21R	46/21	V-BL/BL-V					12
22T/22R	47/22	V-O/O-V					13
23T/23R	48/23	V-G/G-V					14
24T/24R	49/24	V-BR/BR-V					15
25T/25R	50/25	V-S/S-V					Spare

Table 17
Z-typecross-connecting wire

Size	Gauge	Color	Designation
1 pr	22	Y-BL	Tip
		BL-Y	Ring
3 pr	24	W-BL	Voice T
		BL-W	Voice R
		W-O	Signal T
		O-W	Signal R
		W-G	Power
		G-W	Power

Table 18
Inside wiring colors

Inside wiring colors		Connect to equipment TN
Z station wire	16/25-pair cable	
G	W-BL	First pair Tip
R	BL-W	First pair Ring
BK	W-O	Second pair Tip
Y	O-W	Second pair Ring

Figure 24
SL-1 telephone cross-connections

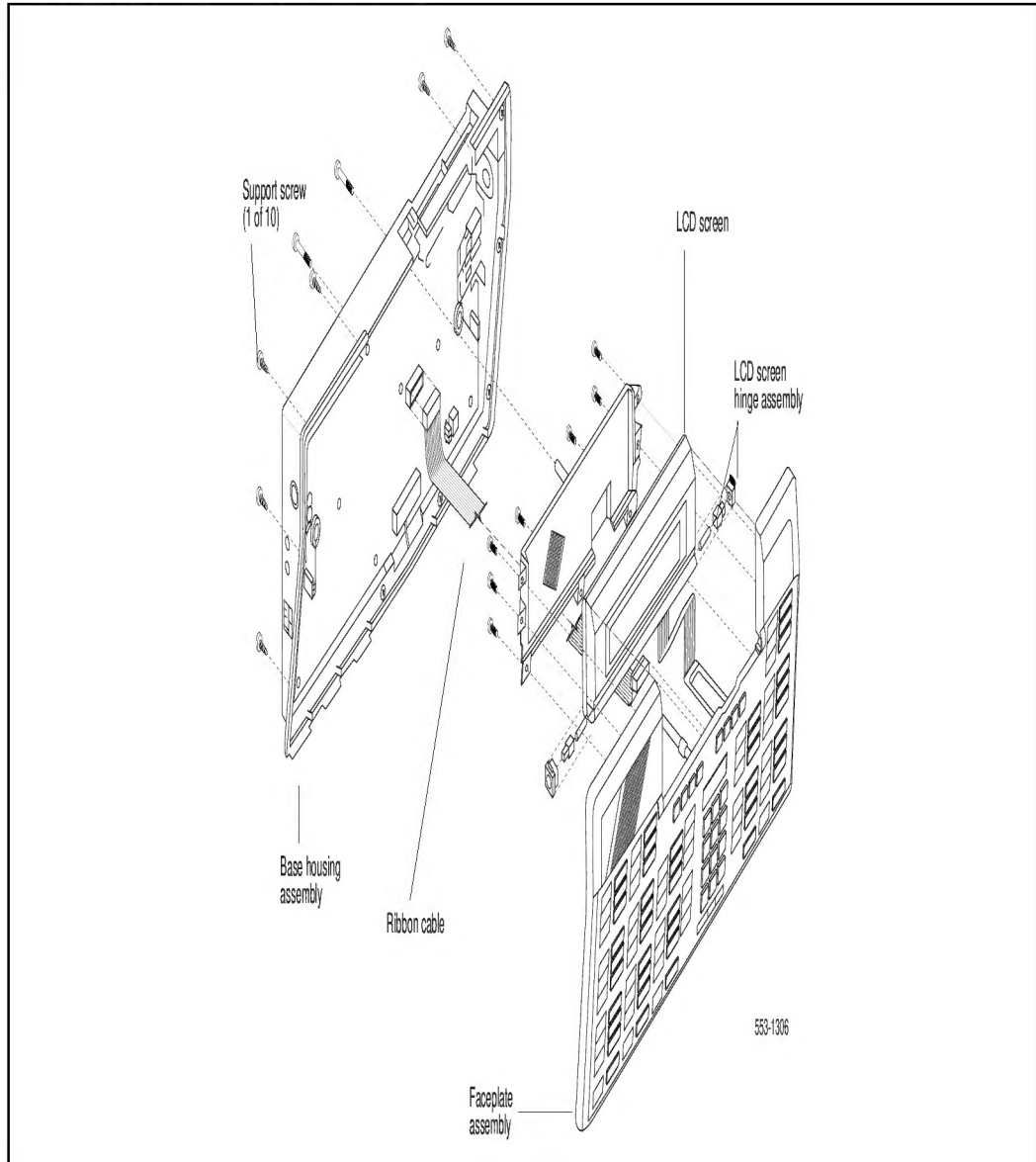


Figure 25
Meridian Modular Telephone cross-connections

